IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

5G IP HOLDINGS LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO. LTD.; SAMSUNG ELECTRONICS AMERICA, INC.; AND SAMSUNG RESEARCH AMERICA *Defendants*.	Case No. 4:21-cv-622-SDJ

5G IP HOLDINGS LLC'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Neither of the exceptions permitting a departure from the plain and ordinary meaning applies to the 10 claim terms at issue. Indeed, Samsung has identified no lexicography or disavowal justifying such a departure in its claim construction disclosures here. And outside of this proceeding, Samsung has declined to ask the Patent Office to construe any of these 10 claim terms in its recent petitions requesting IPR of every asserted claim across the three patents-in-suit. In support of two of those petitions, Samsung's expert, Dr. Paul Min, stated that "no claim terms require construction."[1] And in the third, he opined that "all claim terms should be given their plain and ordinary meaning."[2]

Yet here, Samsung invites this Court to restrict the meaning of the same claims to include additional limitations, or find them indefinite. As further detailed below, however, the intrinsic evidence lacks the basis necessary to support Samsung's proposals. Instead, it confirms that 5GIP's patents use the disputed claim terms consistent with their plain and ordinary meanings to an artisan of ordinary skill at the time of invention. And given that the terms are all well-known terms of art, no further construction is required, as courts in this district and elsewhere have regularly held.[3]

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[1] Ex. A at ¶ 96; Ex. B at ¶ 71.

[2] Ex. C at ¶ 78; *see also id*. at ¶ 79 (stating "the applicant has not redefined any claim terms," and offering opinion on "what a POSA would understand to be the plain and ordinary meaning" of two terms—namely, BWP and CORESET).

[3] *See*, *e.g.*, *Celltrace LLC v. AT & T Inc.*, No. 6:09-cv-294, 2011 WL 738927, at *18 (E.D. Tex. Feb. 23, 2011) (Love, M.J.) ("Because a 'cellular telephone' is well-known, the Court finds no construction is required."); *MaxLinear, Inc. v. Silicon Lab'ys Inc.*, No. 12-cv-1161, 2013 WL 12124606, at *8 (S.D. Cal. Apr. 17, 2013) (finding no construction necessary for "MOS transistor," a "well-known term of art"); *Biax Corp. v. Nvidia Corp.*, No. 09-cv-1257, 2010 WL 2539769, at *13–14 (D. Colo. June 21, 2010) (agreeing "conditional branch instruction" is "a commonly-used term of art that needs no construction"), *aff'd*, 498 F. App'x 998 (Fed. Cir. 2013); *Nettalk.com, Inc. v. MagicJack Vocaltec Ltd.*, No. 12-cv-81022, 2014 WL 6751714, at *6 (S.D. Fla. Dec. 1, 2014) (given expert testimony that "'memory source' is well known to those of

In addition to lacking intrinsic support, many of Samsung's proposed constructions introduce unnecessary ambiguity by redrafting these terms, including by using language that doesn't appear in the industry standards that the parties agree are relevant. But there's no basis for adopting Samsung's words over the well-known industry terms that the inventors chose to define the scope of their inventions. As the Federal Circuit stated in *U.S. Surgical Corp. v. Ethicon, Inc.*: "Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy."[4] Hence, this Court and others have repeatedly rejected proposed constructions, like many of Samsung's here, that are unnecessary and confusing rewordings of claim terms.[5] This Court should do so once again and adopt the plain and ordinary meaning for all 10 disputed claim terms.

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ordinary skill in the art," finding that term "needs no construction").

[4] 103 F.3d 1554, 1568 (Fed. Cir. 1997); *see also Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004) (A patentee is entitled to the "full scope of [claim] language absent a clear disavowal or contrary definition in the specification."); *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) ("[D]istrict courts are not (and should not be) required to construe every limitation present in a patent's asserted claims.").

[5] *CDN Innovations, LLC v. Grande Commc'ns Networks, LLC*, No. 4:20-cv-653, 2021 WL 3615908, at *23 (E.D. Tex. Aug. 13, 2021) (Jordan, J.) (declining to adopt construction that "unnecessarily redrafts [the] claim language"); *SpaceTime3D, Inc. v. Samsung Elecs. Co.*, No. 2:19-cv-372, 2020 WL 7183538, at *12 (E.D. Tex. Dec. 7, 2020) (Payne, M.J.) ("Defendants fail to provide a persuasive reason to redraft the claim by inserting this unnecessary language."); *Kaifi LLC v. AT&T Corp.*, No. 2:19-cv-138, 2020 WL 1905358, at *15 (E.D. Tex. Apr. 17, 2020) (Gilstrap, J.) (finding defendants failed to "offer a persuasive reason why 'connected' should be redrafted as 'switched,'" especially where it "could be confusing"); *Salazar v. HTC Corp.*, No. 216-cv-1096, 2017 WL 5021986, at *7 (E.D. Tex. Nov. 3, 2017) (Payne, M.J.) (rejecting constructions that would "unnecessarily complicate the plain meaning of these terms and create ambiguity and confusion"); *see also Nanology Alpha LLC v. WITec Wissenschaftliche Instrumente und Technologie GmbH*, No. 6:16-cv-445, 2017 WL 5905272, at *8 (E.D. Tex. Nov. 30, 2017) (Schroeder, J.) (adopting agreed plain-and-ordinary-meaning construction, after finding defendant's original proposed constructions unnecessarily redrafted terms and added limitations).

II. BACKGROUND

A. 5GIP'S PATENTS

In 1998, telecommunications companies formed the 3rd Generation Partnership Project ("3GPP") to develop cellular standards to improve the speed, performance, and reliability of their networks.[6] This began with the third-generation standard, commonly known as 3G.[7] Most recently, 3GPP developed the fifth-generation technology standard for cellular networks ("5G").[8] And in 2019, companies began deploying networks implementing the 5G standard.[9]

Plaintiff 5GIP's predecessor-in-interest, FG Innovation Company Ltd., developed numerous technologies that are core aspects of the 5G standard.[10] These include the three standard-essential patents asserted here—namely, 5GIP's U.S. Patent Nos. 10,624,150; 10,813,163; and 10,868,649.[11] Additional relevant technology and invention background for each patent is provided below when addressing the disputed terms for each patent, and will be included in 5GIP's forthcoming technology tutorial.

B. SAMSUNG'S IPR PETITIONS

On February 7, 2022, Samsung filed petitions for *inter partes* review (IPR) challenging every asserted claim of the '150, '163, and '649 patents.[12] In its IPR petitions, Samsung acknowledged that the Patent Trial and Appeal Board must construe claim terms using the same

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[6] *E.g.*, Dkt. #1 (Complaint) at ¶ 1.

[7] *E.g.*, *id*.

[8] *E.g.*, *id*.

[9] *E.g.*, *id*. at ¶ 2.

[10] *Id*. at ¶ 3.

[11] *See id*. at ¶¶ 3, 25, 39, 53.

[12] *See* Ex. D; Ex. E; Ex. F. The PTAB hasn't yet issued any decisions on whether to institute of these IPR petitions, and 5GIP's preliminary responses are due on June 29, 2022.

standard that applies in district court.[13] But unlike in the present case, Samsung "submit[ted] that no claim terms require construction" in the petitions challenging the '150 and '163 patents.[14] Samsung's IPR expert, Dr. Paul Min, likewise stated: "In my opinion, no claim terms require construction for the resolution of this IPR."[15] And similarly, in its petition challenging the '649 patent, Samsung "submit[ted] that the plain and ordinary meaning of all claim terms should control."[16]

III. LEGAL STANDARD

Under *Phillips v. AWH Corp.*, claim terms "are generally given their ordinary and customary meaning," as understood by "a person of ordinary skill in the art in question at the time of the invention."[17] To ascertain this, courts look primarily to the intrinsic evidence, including the specification and prosecution history.[18] In some instances, courts may also consider extrinsic evidence, such as expert testimony—but under *Phillips*, it's less reliable than the intrinsic record and must be offered for a proper purpose.[19] As the Federal Circuit held in *Teva Pharmaceuticals*

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[13] *E.g.*, Ex. D at 14 (citing 37 C.F.R. § 42.100(b)).

[14] *Id*. at 15; Ex. E at 17.

[15] Ex. A at ¶ 96; Ex. B at ¶ 71.

[16] Ex. F at 14. "[F]or clarity only," the '649 patent petition includes arguments addressing two terms at issue, namely "BWP and "CORESET." *Id*. at 14–20. The petitions challenging the '150 and '163 patents don't similarly address any claim terms.

[17] 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). According to Samsung's expert, a POSITA "would have had at least a bachelor's degree in electrical engineering, computer science, telecommunications, or a similar discipline, or the equivalent experience, and at least two years' experience designing radio access networks (or devices operating on radio access networks), such as the access portions of 4G/LTE or 5G networks." Ex. G at ¶ 34.

[18] *Phillips*, 415 F.3d at 1314–17.

[19] *Id*. at 1317–19; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004) (External evidence is "less significant than the intrinsic record in determining the legally operative meaning of claim language."); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1585 (Fed. Cir. 1996) (similar).

USA, Inc. v. Sandoz, Inc., "[e]xperts may explain terms of art and the state of the art at any given time, but they cannot be used to prove the legal construction of a writing."[20]

The claims are afforded the full scope of their plain and ordinary meaning, absent a specific disclaimer by the inventor.[21] Indeed, it's well-settled that the claims "are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history."[22] And the Federal Circuit has identified "only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution."[23]

Notably, in *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, the Federal Circuit held that "[w]hen the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it."[24] But this doesn't mandate that district courts redefine every disputed term.[25] Rather, it's well established that a district court may resolve a dispute, consistent with *O2 Micro*, by rejecting one party's proposed construction and instead ascribing the term its "plain and ordinary meaning."[26] As Magistrate Judge Craven explained:

While it is a district court's duty is to construe the claims, part of this duty is to

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[20] 789 F.3d 1335, 1339 (Fed. Cir. 2015) (on remand from Supreme Court).

[21] *See Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004) (A patentee is entitled to the "full scope of [claim] language absent a clear disavowal or contrary definition in the specification.").

[22] *Unwired Planet, LLC v. Apple Inc.*, 829 F.3d 1353, 1358 (Fed. Cir. 2016); *accord Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

[23] *Unwired Planet*, 829 F.3d at 1358 (quoting *Thorner*, 669 F.3d at 1365); *accord Vitronics*, 90 F.3d at 1580.

[24] 521 F.3d at 1362.

[25] *See*, *e.g.*, *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1206–07 (Fed. Cir. 2010).

[26] *E.g.*, *id.*; *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1324–26 (Fed. Cir. 2012).

> determine the extent which to construction is even necessary. With regard to meaning, where additional language may be unduly limiting, confusing, or redundant, it is in a court's power to determine that no construction is necessary.[27]

IV. ARGUMENT

DISPUTED '150 PATENT TERMS

The '150 patent is generally directed to radio resource control ("RRC") connection resumption procedures for a wireless communication system related to a Narrow-Band Internet of Things ("NB-IoT").[28] At a high level, its claims provide technical improvements for the speed, latency, and battery life issues in prior-art wireless communications systems.[29] The five disputed claim terms from the '150 patent (in bold) first appear in claim 1, which states:

> A radio resource control (RRC) connection resume method of a wireless communication system, comprising:
>
> receiving, by a user equipment (UE), an RRC suspend message from a **first base station**;
>
> **performing, by the UE, an RRC resume procedure with a second base station** in response to the RRC suspend message; and
>
> receiving, by the UE, an RRC resume response from the **second base station**,
>
> wherein the RRC suspend message comprises:
>
> a) **target cell information**, and
>
> b) **target radio access technology information** comprising numerology information.[30]

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[27] *Alexam, Inc. v. Best Buy Co.*, No. 2:10-cv-93, 2012 WL 1188406, at *6 (E.D. Tex. Apr. 9, 2012) (citing *O2 Micro*, 521 F.3d at 1360); *see also Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Only terms in controversy need to be construed, and only to the extent necessary to resolve the controversy.).

[28] *See* '150 patent (Dkt. #1-1) at 1:15–19; *see also id*. at 1:23–28 ("The next generation new radio Narrow-Band Internet of Things (NR NB-IoT) is a new radio access technology of the next generation radio access network (RAN) that the 3rd Generation Partnership Project (3GPP) is developing to support a large amount of low-cost device (e.g., 106 devices/Km2) to exchange (e.g., transmit and receive) data in the next generation radio access network (e.g., 5G-RAN).").

[29] *See*, *e.g.*, *id*. at 1:23–2:43.

[30] *Id*. at 13:64–14:9.

1. "RRC resume procedure"[31]

There's no need to redraft the well-known term of art "RRC resume procedure," which the '150 patent's claims and specification use according to its plain and ordinary meaning. As Samsung doesn't dispute, a POSITA at the time of invention would understand that RRC resume procedures are described in 3GPP's RRC network protocol. Indeed, the sworn expert declaration from Dr. Min that Samsung submitted in support of its IPR petition states that "RRC resume procedures are described in the RRC Protocol developed by 3GPP."[32]

More particularly, for next-generation 5G New Radio networks, RRC is specified in 3GPP TS 38.304 and 38.331.[33] These industry standards documents explain that a user equipment ("UE"), such as a cell phone, must be in one of three RRC states: connected, inactive, or idle.[34] And the UE performs certain operations, depending on the RRC state.[35] For instance, in the connected state only, the UE monitors control channels to determine if data is scheduled for it, and also provides channel quality and feedback information.[36] Such operations, the '150 patent notes, may drain a device's battery more quickly, or impact network performance.[37]

Unsurprisingly, as Samsung's claim construction expert explained, TS 38.331 describes procedures to "suspend" an RRC connection when the UE is in a connected state, or "resume" an

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[31] As used in '150 patent claims 1–4 and 8.

[32] Ex. A at ¶ 80. According to Dr. Min, this RRC Protocol was known as of the time of invention. *See id*. at ¶¶ 80–87.

[33] *See*, *e.g.*, Ex. G at ¶¶ 39–42.

[34] Ex. H (TS 38.331) at 20 ("A UE is either in RRC_CONNECTED state or in RRC_INACTIVE state when an RRC connection has been established. If this is not the case, i.e. no RRC connection is established, the UE is in RRC_IDLE state.").

[35] *Id*. at 20–21 (§ 4.2.1, entitled "UE states and state transitions including inter RAT").

[36] *Id*. at 21.

[37] *See*, *e.g.*, '150 patent at 1:48–51.

RRC connection when the UE is in an inactive or idle state.[38] In the section entitled "RRC connection control," TS 38.331 explains that a network may suspend an RRC connection, at which point the UE "transits to RRC_INACTIVE."[39] This section then describes a procedure for resuming RRC connections, shown (in part) below:[40]

> The resumption of a suspended RRC connection is initiated by upper layers when the UE needs to transit from RRC_INACTIVE state to RRC_CONNECTED state or by RRC layer to perform a RNA update or by RAN paging from NG-RAN. When the RRC connection is resumed, network configures the UE according to the RRC connection resume procedure based on the stored UE Inactive AS context and any RRC configuration received from the network. The RRC connection resume procedure re-activates AS security and re-establishes SRB(s) and DRB(s).
>
> In response to a request to resume the RRC connection, the network may resume the suspended RRC connection and send UE to RRC_CONNECTED, or reject the request to resume and send UE to RRC_INACTIVE (with a wait timer), or directly re-suspend the RRC connection and send UE to RRC_INACTIVE, or directly release the RRC connection and send UE to RRC_IDLE, or instruct the UE to initiate NAS level recovery (in this case the network sends an RRC setup message).

TS 38.331 also includes a general diagram of a "successful" RRC resume procedure (below),[41] and additional detail on the communications (e.g., RRCResumeRequest) between the base stations and the UE referenced in the diagram:[42]

[38] Ex. G at ¶¶ 39–40.

[39] Ex. H (TS 38.331, § 5.3.1.1) at 37.

[40] *Id*. at 38. Relatedly, § 4.4 explains that the main functions of the RRC protocol include the broadcast of system information, including "[i]nformation applicable for UEs in RRC_IDLE and RRC_INACTIVE (e.g. cell (re-)selection parameters, neighbouring cell information) and information (also) applicable for UEs in RRC_CONNECTED (e.g. common channel configuration information)"; and "RRC connection control," including "[e]stablishment/modification/suspension/resumption/release of RRC connection." *Id*. at 23.

[41] *Id*. at 72.

[42] *See*, *e.g.*, *id*. at 74–75.

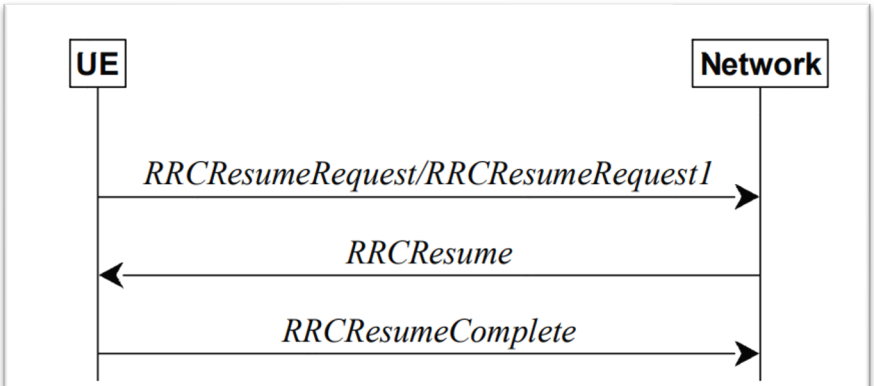

Figure 5.3.13.1-1: RRC connection resume, successful

Further, TS 38.331 explains that this RRC resume procedure may be performed by the UE in response to receiving an RRCRelease message.[43]

And the '150 patent's uses the claim term "RRC resume procedure" consistently with the industry standards that 3GPP promulgated. The '150 patent specification explains that "[i]n the next generation radio access network (e.g., 5G-RAN), a next generation base station (e.g., a gNB) may suspend RRC connection … by using an RRC suspend procedure."[44] It may do so because "the radio link quality between them is getting poor," or some predefined condition has been satisfied.[45] And the '150 patent specification provides multiple examples of an RRC resume procedure, consistent with 3GPP TS 38.331. For instance, the specification explains:

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[43] *Id.* at 67, 154 (describing "RRCRelease by the UE" procedure"); *see also* Ex. I (TS 38.304) at 30 (describing an example of RRC resume procedure where "[a]t reception of *RRCRelease* message to transition the UE to RRC_IDLE or RRC_INACTIVE, UE shall attempt to camp on a suitable cell according to *redirectedCarrierInfo* if included in the *RRCRelease* message").

[44] '150 patent at 5:7–11; *see also id.* at 5:11–17 ("To suspend the RRC connection, the serving base station (e.g., a gNB) of the UE may send an RRC connection release message with resume identity to the UE. Then, the UE may store the UE's context, … and then suspend the RRC connection after receiving the RRC connection release message.").

[45] *Id*. at 7:44–50; *see also id*. at 1:43–48 ("[S]ince the next generation wide band (e.g., 5G-WB) cells are relatively small (e.g., with a coverage radius of 100 meters), if a user equipment (UE) moves out of the next generation wide band cells and still keeps looking for the wide band cells, the UE may have to frequently conduct cell selection and reselection.").

> After the RRC connection is suspended, the UE may request to resume the suspended RRC connection by sending RRC connection resume request with the given resume identity to a target base station, which may be the original serving base station sending the RRC suspend message to the UE (e.g., a gNB or an eNB), or a different base station in the RAN (e.g., a gNB or an eNB). In response to the request to resume the RRC connection, the target base station may (1) resume the suspended RRC connection of the UE; or (2) reject the request to resume and instruct the UE to either keep or modify (part of) the stored context; or (3) setup a new RRC connection for the UE.[46]

This is illustrated, at a high level, in Figure 2 of the '150 patent.[47] And the '150 patent includes additional examples of RRC resume procedures. This includes Figure 4 of the patent, which diagrams an exemplary "RRC resume procedure achieved by a 2-step radio access procedure."[48] Figure 5 diagrams a similar, 4-step "RRC resume procedure."[49]

Given the above, "RRC resume procedure" would be readily understandable to a POSITA at the time of invention. There's no need to redraft such a well-known term of art.[50] Moreover, Samsung has already agreed that the claim terms "RRC suspend message" and "RRC resume response" have their plain and ordinary meaning, with no further construction required.[51] The "RRC resume procedure," which may begin after the "RRC suspend message" and before

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[46] *Id*. at 5:20–32.

[47] *Id*. at Fig. 2, 5:39–44 ("In step S210, an RRC suspend message is received by a UE from a first base station. In step S220, an RRC resume procedure is performed by the UE with a second base station in response to the RRC suspend message. In step S230, an RRC resume response is received by the UE from the second base station.").

[48] *Id*. at 9:1–3; *see also id*. at 9:3–20 (further explaining Fig. 4).

[49] *Id*. at 9:21–23; *see also id*. at 9:23–40 (further explaining Fig. 5); *id.* at 2:23–30 ("[I]n a next generation radio access network (e.g., 5G-RAN), a UE may transition from an RRC connected state to an RRC inactive state or an RRC idle state, …. For the RRC state transitions, an RRC suspend message and an RRC Resume message may be used."); *id*. at 8:29–31 (describing RRC resume procedure and explaining that the UE "may transition from RRC inactive state (or RRC idle state) to RRC connected state"); *id*. at 7:52–54 ("Source cell 304 may configure UE 302 to transition from RRC connected state to RRC inactive state (or RRC idle state).").

[50] *See* note 3, *supra* (collecting cases).

[51] Dkt. #45 at 1.

the "RRC resume response," can just as readily be explained to the jury as these other terms.

Additionally, Samsung's proposed construction ("message exchange to transition a UE into RRC connected state"), is incorrect to the extent that it implies that the claimed RRC resume procedure must include multiple messages and successfully transition a UE into RRC connected state. The claims at issue don't include such limitations. And it would improperly exclude embodiments described in the '150 patent specification. For instance:

> In one embodiment, the RRC resume response indicates that whether the RRC resume procedure is performed successfully or not. In some embodiments, the RRC resume response further includes data packet acknowledgement (ACK) or Non-acknowledgement (NACK). For example, when the small uplink packet is transmitted with the RRC resume procedure, the second base station may transmit an ACK to the UE after the small uplink packet is received successfully, or transmit a NACK to the UE if the small uplink packet is not received.[52]

Although Samsung's Dr. Madisetti purports to rely on the same 3GPP TS 38.331 version 15.13.0 discussed above,[53] the word "exchange" doesn't appear in any portion of that standards document related to resuming RRC connections. Adding it introduces unnecessary ambiguity into the claims. And regardless of the meaning or accuracy of Samsung's proposed construction, it's an unnecessary redrafting of the language that's used in the industry, and the patentee chose. In similar circumstances, this Court and others have repeatedly rejected such unnecessary proposed constructions.

For instance, in *TQP Development, LLC v. 1-800-Flowers.com, Inc.*, the defendant sought to construe the term "communication link from a transmitter to a receiver" as "a connection for communication between a transmitter and a receiver."[54] But Magistrate Judge Payne,

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[52] '150 patent at 7:10–19; *see also id*. at 11:14–29 (describing another embodiment where the UE transmits certain information but may not go into RRC connected state).

[53] *See* Ex. G at ¶¶ 39–40, 51.

[54] No. 2:11-cv-248, 2013 WL 2177896, at *24 (E.D. Tex. May 20, 2013).

noting that the specification included a relevant illustration, agreed with the plaintiff that no construction was necessary.[55] As he explained: "Defendants proposed construction is unnecessary and would do little, if anything, to clarify the disputed term. Instead, the claim language is sufficiently clear such that the disputed term need not be construed."[56]

Similarly, in *CareFusion 303, Inc. v. Sigma Int'l*, the plaintiff proposed that a claim term containing the phrase "pivotable about an axis" had its plain and ordinary meaning (i.e., didn't require further construction).[57] The defendant also purported to rely on the plain and ordinary meaning, but proposed a construction that "merely substitutes 'rotates' for 'pivotable' without corresponding support in the intrinsic evidence."[58] The Southern District of California denied that request to unnecessarily redraft the term. As the court explained, the claim term was readily understandable to a POSITA "after reading the claims and consulting the intrinsic evidence."[59]

The Court should likewise reject Samsung's proposed construction here, consistent with *TQP Development*, *CareFusion 303*, and numerous other analogous cases.[60]

And Samsung's alternative position that this term is indefinite also lacks merit. The Supreme Court's seminal 2014 *Nautilus* decision pronounces that a term isn't indefinite if, when "viewed in light of the specification and prosecution history, [it] inform[s] those skilled in the art about the scope of the invention with reasonable certainty."[61] As Chief Judge Gilstrap has further

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[55] *Id*.

[56] *Id*.

[57] No. 10-cv-442, 2011 WL 3741072, at *2 (S.D. Cal. Aug. 25, 2011).

[58] *Id*.

[59] *Id.*; *see also id*. (for the same reasons, construing disputed term "distal" to have its plain and ordinary meaning, and declining defendant's request to construe that term as "located opposite, and away or remote from").

[60] *See*, *e.g.*, note 5, *supra* (collecting cases).

[61] *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

explained, under *Nautilus* the "ultimate issue is whether someone working in the relevant technical field could understand the bounds of a claim."[62] That multiple relevant 3GPP standards documents or sections of those documents describe "RRC resume procedures," at most, speaks to the broadness of the claim term (though, in fact, the procedures described in those documents are substantially similar). But that doesn't make the term indefinite.[63]

2. "performing, by the UE, an RRC resume procedure with a second base station" / "perform an RRC resume procedure with a second base station"[64]

This term also has its plain and ordinary meaning for the same reasons discussed above, in connection with "RRC resume procedure," and below, in connection with the terms "first base station" / "second base station."

3. "target cell information"[65]

No further construction is required for this term, beyond the plain and ordinary meaning. Claim 1 of the '150 patent, for instance, describes an RRC connection resume method in which a user equipment (UE) receives an RRC suspend message that includes:

a) target cell information, and
b) target radio access technology information comprising numerology information.

And the specification provides detailed examples of the claimed "target cell information":

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[62] *BMC Software, Inc. v. ServiceNow, Inc.*, No. 2:14-cv-903, 2015 WL 4776970, at *10 (E.D. Tex. Aug. 13, 2015); *see also Nautilus*, 572 U.S. at 909 ("One must bear in mind, moreover, that patents are not addressed to lawyers, or even to the public generally, but rather to those skilled in the relevant art.") (internal quotation omitted).

[63] *See*, *e.g.*, *Gree, Inc. v. Supercell Oy*, No. 2:20-cv-113, 2021 WL 963407, at *18 (E.D. Tex. Mar. 15, 2021) (agreeing with plaintiff that claim term "is broad but it is not indefinite," as it encompassed "any manner of relationship" between the numbers recited in the claims); *dunnhumby USA, LLC v. emnos USA Corp.*, No. 13-cv-399, 2015 WL 1542365, at *29 (N.D. Ill. Apr. 1, 2015) ("A claim is not indefinite merely because it covers broad possibilities and encompasses multiple embodiments of the claimed terms.").

[64] As used in '150 patent claims 1 and 4.

[65] As used in '150 patent claims 1, 8, and 13.

> For example, the target cell information may include support information to help the UE to find out at least one target cell, such as a target cell ID, e.g., a physical cell ID of the target cell(s), which may be broadcasted by the target cell periodically. The support information may include a frequency band deployment (e.g., In-band/guard-band/standalone deployment) of the NB-IoT target cell (legacy NB-IoT cell or a NR NB-IoT cell). The support information may include a frequency carrier deployment, e.g., ARFCN (absolute radio-frequency channel number), EARFCN (E-UTRA absolute radio-frequency channel number), PRB (Physical resource block) index. The support information may include an operating bandwidth, e.g., 180 KHz for a legacy NB-IoT cell or a NR NB-IoT cell.[66]

Much like with "RRC resume procedure," Samsung's proposed construction ("information used to identify the second base station") is incorrect to the extent "used to identify" means that the claimed UE must be successful in identifying any target cell. Nothing in the intrinsic record suggests the claims require successful use of the target cell information. And even if Samsung concedes that "target cell information" doesn't require successful use of this information, Samsung's proposed construction boils down to an unnecessary and potentially confusing redrafting of the patentee's chosen claim language. For example, Samsung's proposed construction requiring the "target cell" to be the "second base station" ignores situations where the target cell may be the original cell, as further explained below.[67] Further, Samsung's proposed construction further ignores the plain language used in TS 38.331 that it relies on heavily for the term "RRC resume procedure."[68] And Samsung's proposed construction also seeks to improperly conflate "cell" and "base stations." As the '150 patent provides, a base station may include multiple cells that 5G transmissions rely on, or target, to establish connections:

> In the next generation radio access network (e.g., a 5G-RAN), a base station, such as a next generation node B (gNB), may provide both the next generation wideband (e.g., 5G-WB) cell(s) and NR NB-IoT cell(s). Different NR NB-IoT cell(s)

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[66] '150 patent at 6:26–39.

[67] *See id*. at 5:20–26. This is further addressed below, in connection with the "base station" terms.

[68] *See*, *e.g.*, Ex. H at 48–50, 78, 82–83, 141, 206–207, 318, 326, 462–463 (discussing the "target cell" and "target SpCell").

and 5G-WB cell(s) within a gNB may be regarded as different cells.[69]

Given the detailed examples in the specification, a POSITA reading the '150 patent as a whole would understand the claimed "target cell information."[70] For the same reason, it won't be difficult to explain it to the jury. And in like circumstances, this court and others have repeatedly declined requests to redraft claim language, similar to Samsung's proposed construction here.[71]

4. "target radio access technology information"[72]

For the same reasons as the previous term, "target radio access technology information" also has its plain and ordinary meaning, with no further construction required. As noted, the recited RRC suspend message in claim 1, for example, further includes "target radio access technology information comprising numerology information."[73] Again, the specification provides detailed examples of the information that qualifies, as does TS 38.331.[74] And Samsung again seeks to incorrectly conflate cells with base stations.[75] Samsung's proposed construction ("radio access

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[69] '150 patent at 4:27–32.

[70] *See*, *e.g.*, *id*. at Figs. 3, 4, 5, 6, 7, and 8, and respective discussions at 7:24–12:61, all identifying the "target cell" and not a "second base station."

[71] *See*, *e.g.*, notes 3 and 5, *supra* (collecting cases); *TQP Dev.*, 2013 WL 2177896, at *24; *CareFusion*, 2011 WL 3741072, at *2.

[72] As used in '150 patent claims 1, 8, and 13.

[73] *E.g.*, '150 patent, claim 1.

[74] *See*, *e.g.*, *id*. at 5:66–6:8 ("In one embodiment, the RRC suspend message includes target radio access technology (RAT) information, e.g. a target PLMN (public land mobile network) ID. For example, the source cell may indicate the target RAT for inter-RAT mobility support when the RRC suspend type is the inter-RAT mobility so that the UE could select the target cell. In one embodiment, the target radio access technology information includes a bandwidth part configuration, such as a bandwidth configuration in frequency domain, numerology information, or coverage enhancement level information."); *id*. at 6:9–24 (further describing coverage enhancement level information); Ex. H at 54–56, 82–83, 112, 141 (discussing "target RAT").

[75] *See*, *e.g.*, '150 patent at 7:54–57 ("In addition, source cell 304 may provide supporting information (e.g., target RAT information, or target cell information) in the RRC suspend message to help UE 302 find a target cell.").

technology information about the second base station") is, at best, an unnecessary redrafting of the claim language that this Court should reject.

5. "first base station" / "second base station"[76]

The terms "first base station" and "second base station" have their plain and ordinary meaning, and no further construction is required. Claim 1 of the '150 patent, for instance, describes an RRC connection resume method in which a user equipment (UE) receives "an RRC suspend message from a first base station," performs "an RRC resume procedure with a second base station," and receives "an RRC resume response from the second base station."[77] A POSITA would understand that the "first base station" and "second base station" must only perform their stated functions, as nothing in the claims or specification requires that they be physically different or have separate structures.

And Samsung's construction would improperly exclude an embodiment from the specification. That embodiment expressly states that the "first base station" isn't necessarily a different base station than the "second base station."

> After the RRC connection is suspended, the UE may request to resume the suspended RRC connection by sending RRC connection resume request with the given resume identity to a target base station, ***which may be the original serving base station sending the RRC suspend message to the UE*** (e.g., a gNB or an eNB), or a different base station in the RAN (e.g., a gNB or an eNB).[78]

This is consistent with the specification's explanation that a UE moving through the relatively

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[76] As used in '150 patent claims 1–4, 6, 8, 9, 11, and 13–17.

[77] '150 patent, claim 1. Claims 8 and 13 of the '150 patent (i.e., the other independent claims that include these terms) describe devices configured to carry out similar steps.

[78] *Id*. at 5:20–26 (emphasis added); *accord id*. at 5:31–36 ("It is also worthy to note the target base station (e.g., a gNB or an eNB) and the serving base station (e.g., a gNB) ***may*** be different base stations. So, the target base station may require UE's context from the serving base station through a process called UE context fetch.") (emphasis added). In the above, a gNB, or "next generation node B," is an example of a base station. *Id*. at 4:28–29.

small next-generation wide band cells "may have to frequently conduct cell selection and reselection," and that suspend messages may be sent when "radio link quality … is getting poor."[79] Simply put, sometimes nothing better than the "first base station" is available.

Beyond that, the Federal Circuit has held that terms such as "first" and "second" are merely identifiers that don't generally require a separate structure. For instance, in *Linear Tech. Corp. v. Int'l Trade Comm'n*, the Federal Circuit concluded that a "second" and "third" electric circuit did "not require entirely separate and distinct circuits."[80] As the court further explained:

> Indeed, there is nothing in the claim language or specification that supports narrowly construing the terms to require a specific structural requirement or entirely distinct "second" and "third" circuits. Rather, the "second" and "third" circuits must only perform their stated functions.[81]

Here, similarly, the "first" and "second" base station must only perform their stated functions, and nothing in the intrinsic record suggests the claims at issue require more.

Thus, Samsung's proposed construction (i.e., that "the 'first base station' is a different base station than the 'second base station'"), would improperly exclude an embodiment. No intrinsic evidence supports such a narrowing of the claims.[82] This Court therefore should reject Samsung's proposal, and instead conclude that "first base station" and "second base station" have their plain and ordinary meaning.

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[79] *Id*. at 1:43–48, 7:44–50.

[80] 566 F.3d 1049, 1055 (Fed. Cir. 2009).

[81] *Id*. (also noting that the "specification expressly discloses that the 'second circuit' and 'third circuit' can share common components"); *see also Home Diagnostics*, 381 F.3d at 1358 ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.").

[82] *See*, *Rambus Inc. v. Rea*, 731 F.3d 1248, 1253 (Fed. Cir. 2013) ("[C]laim construction that excludes the preferred embodiment is rarely, if ever, correct.') (internal quotation omitted); *see also Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004) ("Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.").

THE DISPUTED '163 PATENT TERM

In wireless communication networks, discontinuous reception (DRX) is commonly used to preserve battery life of mobile devices.[83] As the '163 patent explains: "For example, during DRX, a UE [User Equipment] may switch off its [radio-frequency] module and/or suspend control channel monitoring between data transmissions to reduce power consumption."[84]

6. "DRX Slot Offset (drx-StartOffset_slot)"[85]

The two independent claims of the '163 patent state that the UE receives "a Radio Resource Control (RRC) message having a DRX Start Offset (drx-StartOffset) and a **DRX Slot Offset (drx-StartOffset_slot).**"[86] No further construction is required. A POSITA would understand that the recited DRX Start Offset and DRX Slot Offset are well-known DRX parameters, as Samsung's Dr. Min stated under oath in support of Samsung's IPR petition:

> Well-known DRX parameters include DRX Start Offset and Slot Offsets to determine the start subframe number to begin the DRX operation and determine the starting time of the DRX On-Duration Timer.[87]

And Samsung's proposed construction, "an offset in slot different from a drx-StartOffset or drx-SlotOffset," is incorrect for at least two reasons. First, to the extent Samsung seeks to clarify that the disputed term is an element "different from a drx-StartOffset," its proposed construction is redundant of the claim language and confusing. The claims at issue recite a message having "a DRX Start Offset (drx-StartOffset)" *and* "a DRX Slot Offset (drx-StartOffset_slot)," which already makes it clear both are required elements.

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[83] '163 patent (Dkt. #1-2) at 1:24–28.

[84] *Id*. at 1:28–31; *see also id*. at 1:31–38 (providing further examples).

[85] As used in '163 patent claims 1 and 7.

[86] '163 patent at 17:66–18:2 (claim 1), 18:43–46 (claim 7). Claim term in bold.

[87] Ex. B at ¶ 57.

Second, Samsung's construction would improperly add limitations, without support in the intrinsic record. Contrary to Samsung's construction, the file history confirms that the term "DRX Slot Offset (drx-StartOffset_slot)" isn't "different from … [a] drx-SlotOffset." Specifically, on March 19, 2020, the inventors amended the independent claims to recite that the "drx-SlotOffset has an actual time unit," as shown for claim 1 below:[88]

> determining, by the processing circuitry, a starting time of a DRX On-Duration Timer (drx-onDurationTimer) in the start subframe based on the drx-SlotOffset, wherein the drx-SlotOffset has an actual time unit.

And on May 8, 2020, the Examiner issued a final Office Action indicating that claims 1–12 would be allowed if "drx-SlotOffset" were amended to "drx-StartOffset_slot."[89] In doing so, the Examiner explained that this was because the original application used "drx-StartOffset_slot,"[90] and expressly stated that he considered them the same thing:

> **Examiner considers both drx-StartOffset_slot and the drxSlotOffset refer to the same inventive concept.** The rejection of claims 1 and 7 has been withdrawn.[91]

The inventors then confirmed that "the term 'drx-SlotOffset' is same as the term 'drx-StartOffset_slot,'" and amended the claims consistent with this understanding.[92]

And the specification further confirms that would be improper to construe the recited

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[88] Ex. K (File History), Mar. 19, 2020 Amendment and Response (internal exhibit p. 157). The inventors argued that the prior art references did not disclose this because they only disclosed general inactivity timers or On Duration timers. *See id*.

[89] *Id*., May 8, 2020 Office Action.

[90] *Id*. (internal exhibit p.170) ("It is to be duly noted that the 'drx-SlotOffset' was not mentioned in the disclosure of the Application No. 62/564/650 filed on 9/28/2017. However, 'drx-StartOffset_slot' was mentioned as an offset in slot configured by gNB via RRC message(s).").

[91] *Id*. (bold in original).

[92] *Id*., July 8, 2020 Amendment and Response (internal exhibit pp. 194–95).

"DRX Slot Offset (drx-StartOffset_slot)" as something different from a "drx-SlotOffset," as Samsung asks. For instance, the abstract of the '163 patent refers to a "DRX Slot Offset (drx-SlotOffset)," unchanged from the original application. Notably, the abstract doesn't refer to two different slot offsets. Rather, the abstract uses "drx-SlotOffset" in place of "drx-StartOffset_slot," further indicating that they're interchangeable.

DISPUTED '649 PATENT TERMS

The '649 patent is generally directed to "[a] method for signaling radio access network (RAN) profile index."[93] As explained in specification, RAN profiles allow a cell "to adaptively configure parameters of a physical layer … to accommodate the communications between the base station and the respective user equipments (UEs)."[94] And since a 5G (or NR) cell is permitted to dynamically configure its RAN profiles, "significant signaling overhead may be required every time the UE communicates (e.g., transmission/reception) with a base station."[95] Thus, the '649 patent describes a "method for signaling RAN parameters adopting a RAN profile indexing mechanism to facilitate the transmission and reception operations" that reduces signaling overhead, battery drain, and latency, while supporting the flexibility of next-generation networks.[96]

Three of the claim terms at issue in the '649 patent first appear in independent claim 1. That claim states (with disputed terms in bold):

> A method for signaling radio access network (RAN) profile index, the method comprising:
>
> transmitting, by a first cell operating on a first component carrier, a first RAN profile indexing message to a user equipment (UE), the first RAN profile indexing message comprising a first plurality of **Bandwidth Part (BWP)**

[93] '649 patent (Dkt. #1-3), abstract.

[94] *Id*. at 1:35–40.

[95] *Id*. at 1:44–47.

[96] *Id*. at 4:15–24.

indices corresponding to a first plurality of **BWP configurations**;

transmitting, by the first cell on a first resource block (RB) of a default **BWP** of the first component carrier, a first **BWP index** that corresponds to a first **BWP configuration** of the first plurality of **BWP configurations**;

wherein at least one of the first plurality of **BWP configurations** includes:

a **BWP index** associated with the corresponding **BWP configuration**;

a frequency location of the corresponding **BWP configuration**;

a bandwidth in the frequency domain;

a transmission type; and

one or more periodic resource allocations associated with the transmission type;

wherein the first plurality of **BWP configurations** configures at least a first **BWP** and a second **BWP** in the first component carrier in a frequency domain;

wherein the first **BWP** comprises a first set of RBs within a first frequency range of the first component carrier and the second **BWP** comprises a second set of RBs within a second frequency range of the first component carrier;

wherein the first **BWP** and the second **BWP** have different configurations in numerology, which includes a cyclic refix and a subcarrier spacing configuration; and

wherein the first and second frequency ranges are one of (i) at least partially overlapped in frequency domain and (ii) not overlapped in the frequency domain.[97]

7. "bandwidth part" / "BWP"[98]

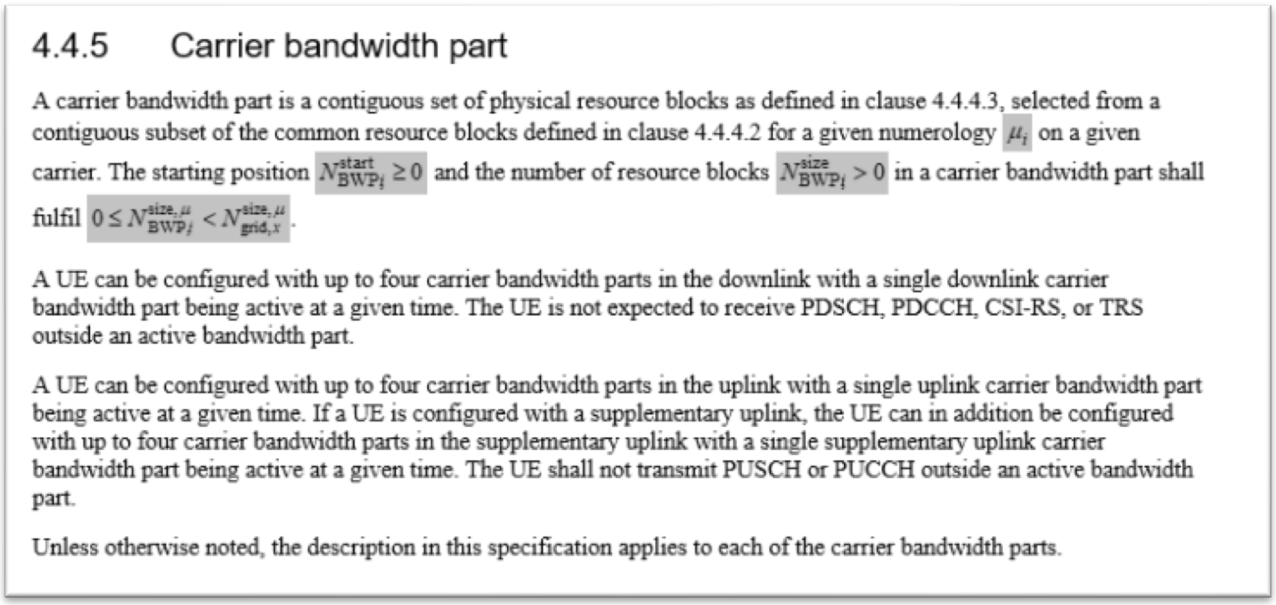
This well-known term of art appears throughout the claims and specification of the '649 patent. For example, the first step of above-quoted claim 1 is transmitting a RAN profile indexing message "comprising a first plurality of Bandwidth Part (BWP) indices corresponding to a first plurality of BWP configurations." As detailed below, the other claims of the '649 patent use

[97] *Id*. at 27:25–60.

[98] As used in '649 patent claims 1, 2, 4, 5–7, 9–13, 15–22, 24–28, and 30.

"Bandwidth Part" or "BWP" according to its readily understandable plain and ordinary meaning.[99] Hence, no further construction is required.[100]

Indeed, Samsung's hasn't explained why its construction ("a slice or portion of the system Bandwidth") is necessary to clarify the plain and ordinary meaning. On the contrary, Samsung's IPR petition stated that "BWP is a generic term" that a POSITA "would understand."[101] And as Dr. Min acknowledged, 3GPP TS 38.211 defines "carrier bandwidth part":[102]



4.4.5 Carrier bandwidth part

A carrier bandwidth part is a contiguous set of physical resource blocks as defined in clause 4.4.4.3, selected from a contiguous subset of the common resource blocks defined in clause 4.4.4.2 for a given numerology μ_i on a given carrier. The starting position $N_{BWP_i}^{start} \geq 0$ and the number of resource blocks $N_{BWP_i}^{size} > 0$ in a carrier bandwidth part shall fulfil $0 \leq N_{BWP_i}^{size,\mu} < N_{grid,x}^{size,\mu}$.

A UE can be configured with up to four carrier bandwidth parts in the downlink with a single downlink carrier bandwidth part being active at a given time. The UE is not expected to receive PDSCH, PDCCH, CSI-RS, or TRS outside an active bandwidth part.

A UE can be configured with up to four carrier bandwidth parts in the uplink with a single uplink carrier bandwidth part being active at a given time. If a UE is configured with a supplementary uplink, the UE can in addition be configured with up to four carrier bandwidth parts in the supplementary uplink with a single supplementary uplink carrier bandwidth part being active at a given time. The UE shall not transmit PUSCH or PUCCH outside an active bandwidth part.

Unless otherwise noted, the description in this specification applies to each of the carrier bandwidth parts.

5GIP agrees that the '649 patent claims use "Bandwidth Part" or "BWP" consistent with 3GPP TS 38.211.[103] But Samsung's proposed construction introduces needless ambiguity by redrafting those claim term to include undefined words "slice" and "portion" that don't appear in

[99] In addition to the discussion of TS 38.211, immediately below, "BWP" is further discussed in connection with the two other disputed terms that include "BWP."

[100] *See*, *e.g.*, notes 3 and 5, *supra* (collecting cases); *TQP Dev.*, 2013 WL 2177896, at *24; *CareFusion*, 2011 WL 3741072, at *2.

[101] Ex. F at 17 n.4.

[102] Ex. C at ¶¶ 57–59; Ex. J (TS 38.211 v.15.0.0, Dec. 2017) at 12.

[103] *See also* '649 patent at abstract, 1:19–3:13, 4:15–24, 5:43–6:60, 7:6–10:44, 10:54–13:54, 14:23–23:21, 23:41–27:18, Figs. 1–18.

that industry standards document. And, as this Court has repeatedly done in the past, it should deny that attempt to unnecessarily redraft how the inventors described their invention.[104]

8. "BWP index" / "BWP indices"[105]

No construction of these terms is required beyond the plain and ordinary meaning. Samsung's proposed construction ("an identifier of a BWP" / "identifiers of BWPs") is incorrect. A BWP index doesn't identify a particular BWP; rather, it identifies a BWP configuration. As the '649 patent specification states: "Each BWP configuration" may include "a BWP indicator (e.g. , BWP index) corresponding to the BWP configuration."[106] And the sworn declaration of Samsung's IPR expert is consistent with the above, as Dr. Min stated that BWP index "corresponds to a specific BWP configuration of a BWP."[107]

9. "BWP configuration(s)"[108]

As discussed above, BWP is a well-known term of art. And since the '649 patent and its claims use "configuration" in the same way that lay jurors and a POSITA would understand it—i.e., a configuration of a BWP, no further construction is required for this term.

For instance, the specification explains that "each BWP may be configured to provide different physical layer (PHY) compositions."[109] Specifically:

> Each BWP configuration may comprise a PHY composition, which may include at least one of the following:
>
> a numerology having a cyclic prefix and a subcarrier spacing configuration;

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[104] *See*, *e.g.*, note 5, *supra* (collecting cases); *TQP Dev.*, 2013 WL 2177896, at *24.

[105] As used in '649 patent claims 1, 5, 6, 10, 11, 16, 20, 21, 25, and 26.

[106] '649 patent at 5:62–6:10; *accord*, *e.g.*, *id.*, abstract (referring to BWP indices "corresponding to a first plurality of BWP configurations").

[107] Ex. C at ¶ 70 (citing '649 patent at 8:25–30).

[108] As used in '649 patent claims 1, 2, 4, 5–7, 9–13, 15–22, 24–28, and 30.

[109] '649 patent at 5:59–61.

> a bandwidth in frequency domain;
>
> a frequency location of the BWP configuration;
>
> Control-Resource Set (CORESET) configurations, which may include control search space configuration for UE to monitor and decode control signalings;
>
> a transmission type (e.g., DL, guard, SL, or UL);
>
> a uplink (UL) grant free resource configuration;
>
> a Semi-Persistent-Scheduling (SPS) configuration;
>
> a default BWP indication having an applicable RRC state; and
>
> a BWP indicator (e.g., BWP index) corresponding to the BWP configuration.
>
> In addition, each BWP configuration may also include a coding scheme, a modulation scheme, and the like.[110]

Samsung's proposed construction, "RAN parameters for [a] BWP(s)," merely introduces needless ambiguity by replacing a two-word term the patentees chose, with a four- or five-word term that they didn't, without providing any helpful clarification. After all, "RAN" is as technical as "BWP," and also appears elsewhere in the claim language, leading to potential confusion. "Parameters," while understandable, likely sees less common usage than "configuration." Given that, it's unsurprising that Samsung's IPR petition states that "a BWP configuration is a set of configuration parameters for a BWP"—which both omits "RAN," and clarifies "parameters" with a redundant use of the claim term "configuration."[111]

And though the specification describes an exemplary embodiment in which RAN parameters correspond "to the settings (e.g., BWP configuration) of a specific BWP,"[112] it doesn't logically follow that all settings of a BWP configuration can be described as "RAN parameters" for

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[110] *Id*. at 5:62–6:12; *see also*, *e.g.*, *id*. at 7:52–57 (describing Fig. 2A, "a diagram illustrating an exemplary paired BWP configuration" that "includes a spectrum and a (portion of) shared PHY composition for both downlink and uplink operations through time division duplex"). The '649 patent refers to BWP configurations throughout, including additional passages at 1:19–3:13, 4:15–24, 5:43–6:60, 7:6–10:44, 10:54–13:54, 14:23–23:21, 23:41–27:18, and Figs. 1–18.

[111] Ex. F at 17 (citing Min Decl. (i.e., Ex. C) at ¶ 84 & n.3).

[112] '649 patent at 8:22–24.

that embodiment, much less all embodiments of the invention. Accordingly, this Court should reject Samsung's proposed construction, and instead adopt the plain and ordinary meaning.[113]

10. "Control-Resource Set" / "CORESET"[114]

This term first appears in claim 2, which recites the system of claim 1:

> wherein the periodic resource allocation associated with the transmission type includes at least one uplink (UL) grant free resource configuration or at least one Semi-Persistent-Scheduling (SPS) configuration, and
>
> wherein the at least one of the first plurality of BWP configurations further includes at least one of:
>
> a **Control-Resource Set (CORESET)** configuration; and
>
> a default BWP indication having an applicable radio resource control (RRC) state.[115]

It's undisputed that this term would be readily understandable to a POSITA reading it in the context of the patent at the time of invention. As such, no construction is required beyond the plain and ordinary meaning.[116]

As the specification explains, a BWP configuration may include "Control-Resource Set (CORESET) configurations, which may include control search space configuration for UE to monitor and decode control signalings."[117] And the specification includes more detailed examples. For instance, a cell may transmit to the UE a Downlink Control Information ("DCI") message in a Physical Downlink Control Channel ("PDCCH").[118] And the specification gives examples where a DCI message may be a CORESET:

> DCI #2 may be a CORESET. The UE receives the CORESET to receive further

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[113] *See*, *e.g.*, note 5, *supra* (collecting cases); *TQP Dev.*, 2013 WL 2177896, at *24.

[114] As used in '649 patent claims 2, 4, 5, 12, 17, 19, 20, and 27.

[115] '649 patent at 27:61–28:3.

[116] *See*, *e.g.*, note 3, *supra* (collecting cases).

[117] '649 patent at 5:62–6:3; *see also id*. at 7:52–8:3 (similar).

[118] *Id*. at 8:38–40.

> control information (PDCCHs) in the CORESET. The PDCCHs in the CORESET may indicate other RBs, which may include data or other control information, for UE to communicate with the RAN. In some implementations, the CORESET configuration is pre-configured with the BWP configuration (through RRC signaling). In some implementations, the CORESET configuration is pre-configured through system information (e.g., Remaining Minimum System Information). The CORESET configuration may include the following information to indicate the location of RBs and its periodicity: (1) a first symbol index: CORESET-start-symb; (2) contiguous time duration of the CORESET in number of symbols; (3) CORESET-time-duration; (4) a set of resource blocks in frequency domain: CORESET-freq-dom. When configured BWP 890A is activated by DCI #1, the UE may know how to receive the CORESET of configured BWP 890A.[119]

As Dr. Min acknowledged in connection with Samsung's IPR petition, the '649 patent's use of "CORESET" is consistent with 3GPP TS 38.211, which states that a "control-resource set consists of *N* [CORESET/RB] resource blocks in the frequency domain."[120] Dr. Min also states that a POSITA would understand that "core-resource set" or "CORESET" in the claims of the '649 patent to be "a generic term referring to a set of resource blocks within a control channel,"[121] or the slightly different variation "set of resource blocks within a downlink control channel."[122] But he doesn't explain why adopting either version is necessary to clarify or deviate from the plain and ordinary meaning.[123]

And in the present case, Samsung has now proposed a third version ("set of resource blocks for control information"), without identifying why it's necessary to reword this already understandable term of art.[124] Indeed, as Dr. Min acknowledges, section 7.3.2.2 of TS 38.211,

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[119] *Id*. at 14:60–15:11 (referring to Fig. 8A); *see also id*. at 18:3–29, 19:41–20:16, Figs. 2A, 6, 9A, 11A, 11B (further examples and explanation).

[120] Ex. C at ¶ 87.

[121] *Id*. at ¶ 87 n.4

[122] *Id*. at ¶ 87.

[123] As noted, Dr. Min acknowledged that "all claim terms should be given their plain and ordinary meaning," and didn't opine that the PTAB should adopt these constructions. *Id*. at ¶¶ 78–79.

[124] Notably, this Samsung proposed construction isn't consistent with how the term was used

titled "Control-resource set (CORESET)," provides a detailed discussion and explanation for a POSITA's use. That section includes almost two pages of explanation of what a CORESET is and how to determine it.[125] Absent a persuasive explanation, this Court should decline to redefine this term, and instead adopt the plain and ordinary meaning.[126]

V. CONCLUSION

This Court should reject Samsung's invitation to redraft or improperly restrict the meaning of some disputed terms to include additional limitations or find them indefinite, without any support in the intrinsic evidence. Instead, for the reasons above, no construction is required for beyond the plain and ordinary meaning for the terms or art at issue, which indisputably would be readily understandable to a POSITA at the time of invention.

during prosecution. The provisional application included the term "RAN slicing information element," which the patentee then changed to "BWP configuration." Samsung's proposed construction of "RAN parameters for [a] BWP" includes "parameters" and excludes "slicing element" from the term used in the provisional.

[125] Ex. J at 59–60.

[126] *See*, *e.g.*, note 5, *supra* (collecting cases); *TQP Dev.*, 2013 WL 2177896, at *24; *CareFusion*, 2011 WL 3741072, at *2.

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5GIP Holdings LLC

CERTIFICATE OF SERVICE

I hereby certify that on June 1, 2022, I electronically filed the foregoing with the Clerk of the Court for the United States District Court for the Eastern District of Texas, Sherman Division, via the CM/ECF system, which will send notice to all counsel of record who have consented to service by electronic means.

/s/ Alan M. Fisch
Alan M. Fisch